EMR CONTRACTOR	ENGINEERING STUDY ☐ CHANGE PROPOSAL ☒	EMR # 1940-1
[redacted]		STAT
DATE 18 October 1965	AFFECTS: Integration Compatibility	

NAME OF MAJOR COMPONENT	PART OR LOWEST SUBASSEMBLY	PART NO. MODEL OR TYPE
Test Module		318254

TITLE OF PROPOSAL: EMR Test Module

NATURE OF PROPOSAL:

The Contractor shall provide a test module in accordance with the requirements set forth under Spec. 318254, entitled "EMR Test Module, General Specification" dated 24 August 1965 attached hereto and made a part of this ECP.

Reference: [redacted] Agreement A-64 dated 27 September 1965. STAT

REASON FOR PROPOSAL:

Provide a device capable of checking EMR/Vehicle Interfaces (mechanical, cooling air, power, etc.) which will eliminate the need for utilizing an actual EMR System during vehicle checkout.

ES	ESTIMATED COST AND TIME INVOLVED: ADDITIONAL FUNDING REQUIRED:
CP	ESTIMATED COST FOR KITS OR PARTS: ADDITIONAL FUNDING REQUIRED:

ITEMS AFFECTED BY PROPOSAL:

SAFETY	MISSION EFFECT.	PERF.	OPER. PROCED.	INTERCHBLTY.	WT. OR WT.&BAL.	TOOLS & SUP.EQ.	MAINT. PROCED.	SERVICE LIFE	FLIGHT MANUAL	MAINT. MANUAL
☐	☐	☐	☐	☐	☐	☒	☐	☐	☐	☐

EST. MAN/HRS. REQ'D. TO ACCOMPLISH CHANGE IN FIELD

SOURCE OF PARTS FOR KIT	AVAILABILITY _____ WEEKS AFTER APPROVAL
	30 November 1965 (Approx.)

DISPOSITION OF SPARES AFFECTED:

N/A

INITIATED BY:	APPROVED BY:
ADP & EMR Contractor	

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATION ... OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION ...H A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS

SYM	SHEET	DESCRIPTION	DATE	APPROVED
A		PRELIMINARY ISSUE	8/2[illegible]	STAT

REV																														
SHEET																														
REV STATUS	REV																													
OF SHEETS	SHEET																													

DRAFTSMAN	DATE 5/19/65	STAT
CHECKER		
ENGINEER	B-20 65	STAT
ENGINEER		
RELIABILITY		
APPROV	8/20/65	
APPROVAL		

EMR TEST MODULE

GENERAL SPECIFICATION

SIZE		
A	318254	STAT
SCALE		SHEET 1 OF 6

AS - 11

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1.0 SCOPE

1.1 This specification defines the design and performance requirements for an EMR Test Module.

1.2 The EMR Test Module shall be capable of checking EMR/vehicle interfaces (mechanical, cooling air, power, etc.) as defined herein and shall consist of a simulated right bay, left bay, test rack and associated cabling.

2.0 APPLICABLE DOCUMENTS

2.1 The following documents shall form a part of this specification, except that in the event of a conflict, the requirements of this specification shall take precedence.

SK 1941 L.S.	Outline, EMR Openings and Protrusions
SK 1941 R.S.	Outline, EMR Openings and Protrusions
TBA	EMR Test Module
TBA	Assembly, EMR Test Module, Left Bay
TBA	Assembly, EMR Test Module, Right Bay
TBA	Assembly, EMR Test Module Rack
PQP 1912/1940/1987 Test Equipment	Project Quality Program for Program 1912/1940/1987 Deliverable Test Equipment

3.0 REQUIREMENTS

3.1 Mechanical Requirements.

3.1.1 The EMR Test Module Bays shall have the same exterior dimensions as a production EMR. All external characteristics i.e. connectors, cooling air inlets and exhaust ports, ground lugs, mounting lugs, etc., except as specifically noted herein, shall be in accordance with SK 1941 L.S. and SK 1941 R.S.

3.1.2 Each Test Module bay shall not exceed the weight of the EMR bay being simulated. The target weight of each Test Module bay shall be 200 lbs. or less.

3.1.3 Flow indicating devices shall be incorporated within each Test Module bay to continuously monitor the cooling air flow rate at each inlet port. All indicators shall be easily visible when the bay is normally installed in the vehicle and may be either direct reading or usable with calibration curves.

3.1.4 The cooling air flow resistance of the Test Module bays shall be identical with the EMR bays and shall fall between 3.8 and 5.2 inches of water at a flow rate of 3 lb/min. and standard conditions.

3.1.5 Antennas and supporting structure shall be simulated only in the vicinity of vehicle structural members.

3.2 Electrical Requirements

3.2.1 The EMR Test Module shall be capable of dissipating 400 cycle and 28V D.C. power equal to that required by the EMR. Meters shall be provided on the test rack to monitor vehicle input voltage and current on each input line. Test points shall be accessible on the test rack to check power phasing.

3.2.2 A maintenance data multiplex switch and signal sources shall be incorporated such that the Test Module presents output signals, compatible with the maintenance recorder, when normal control signals are presented to the Test Module from the vehicle. The output level shall change between every group of 5 adjacent data points to enable a dynamic check of vehicle equipment and shall always be greater than zero volts.

3.2.3 The termination impedance of all Nav Interface lines shall be identical to that of EMR. Test points on the test rack shall be provided to check the Nav Signal at the EMR Test Module.

3.2.4 An alternating on/off signal shall be provided to check the "E" and "C" status lights through a control switch on the test rack.

3.3 Environmental Requirements

3.3.1 The EMR Test Module shall meet the electrical and mechanical requirements of this specification during and after exposure to any combination of the following operating conditions:

3.3.1.1	Temperature	-	60°F to 100°F
3.3.1.2	Pressure	-	28"Hg to 32"Hg
3.3.1.3	Relative Humidity	-	up to 100%

3.3.2 The EMR Test Module shall meet the electrical and mechanical requirements of this specification after exposure to any combination of the following ambients (non-operating):

3.3.2.1	Temperature	-	0°F to 120°F
3.3.2.2	Pressure	-	2"Hg to 32"Hg
3.3.2.3	Relative Humidity	-	up to 100%

4.0 QUALITY ASSURANCE PROVISIONS

4.1 Quality procedures shall be in accordance with PQP 1912/1940/1987 for Test Equipment. Workmanship standards, calibration standards, discrepant material procedures, shall conform with the requirements of the PQP.

4.2 All exterior dimensions of the Test Module bays shall be inspected per SK 1941 L.S. and SK 1941 R.S. The EMR Test Module Assemblies shall be inspected for conformance with TBA, TBA, and TBA.

4.3 Acceptance Tests

4.3.1 The cooling air flow resistance of the test module bays shall be tested for conformance with para. 3.1.4. The flow indicators of para. 3.1.3 shall agree within ±10% of the laboratory standard flow meter (1%) at flow rates of 2, 3 and 4 lbs. of air/minute/bay.

4.3.2 Electrical power requirements of the EMR Test Module shall be tested for conformance to para. 3.2.1. Current and voltage meters used shall have an accuracy of ±2%.

4.3.3 Control signals shall be supplied to the maintenance data multiplex switch for three complete data cycles. The data shall be checked against para. 3.2.2 and the electrical schematic for the EMR Test Module.

4.3.4 The termination impedance of all Nav Interface lines shall be measured and checked against the electrical schematic for the EMR Test Module.

4.3.5 Lamps similar to the "E" and "C" status lights shall be used to check operation of the Test Module per para. 3.2.4.

5.0 PREPARATION FOR DELIVERY

5.1 Packaging shall be adequate to protect the unit from damage during shipment by commercial means.

ANALYSIS

FILE: ECP-1940-1
DATE: 18 October 1965

ITEM NO: ECP-1940-1 PR NO
CONTRACT: AF33(657)-12846
DESCRIPTION OF ITEM: EMR Test Module

DIRECT LABOR CLASS	TOTAL HOURS	COSTS		TOTAL LABOR
		LABOR CLASS A	LABOR CLASS B	
ADMINISTRATIVE (DIRECT)	40	93		93
ENGINEERING	650	3732		3732
TECHNICIANS	460	1603		1603
PUBLICATIONS				
DESIGN AND DRAFTING	460	1603		1603
SHOP	1290		3975	3975
ELECTRICAL ASSEMBLY	920		2792	2792
INSPECTION				
SPARES DATA PREPARATION				
PACKAGING AND SHIPPING	40	93		93
FIELD ENGINEERING				
(1) TOTAL DIRECT LABOR		7124	6767	$ 13891

OVERHEAD: 104 % OF DIRECT LABOR CLASS (A) $ 7409
74 % OF DIRECT LABOR CLASS (B) $ 5008

(2) TOTAL OVERHEAD $ 12417

RAW MATERIAL AND PURCHASED PARTS	4000
SUBCONTRACTING	
TRAVEL AND SUBSISTENCE	832
OVERTIME PREMIUM	513
PACKAGING AND SHIPPING	275
OTHER DIRECT CHARGES	

(3) DIRECT CHARGES (OTHER THAN LABOR) $ 5620

(4) TOTAL OF (1) AND (2) AND (3) $ 31928

(5) GENERAL AND ADMINISTRATIVE EXPENSE, 7.5 % OF (4) $ 2395

(6) ESTIMATED COST, (4) + (5) $ 34323

(7) PLANNED PROFIT OR FEE 8 % OF ESTIMATED COST, (6) $ 2746

GRAND TOTAL, (6) + (7) $ 37069